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spection; the dualist, made confident by the attested value of the empirical fruits, entrenches himself the more obstinately in his theoretical conceptions.

But we may ask: May not behaviorism find a place for much of the empirical procedure which is labelled introspection; and may not one be convinced of the fruitfulness of introspective investigation without becoming a dualist? That is for me the critical question of psychological methodology.

GRACE A. DE LAGUNA.

BRYN MAWR COLLEGE.

OTHER MEN'S MINDS

THE common unformulated notion that we have an intuitive knowledge of other men's minds persists in the conceptions of careful thinkers notwithstanding perfectly obvious objections to such a view.

For instance, we attribute consciousness not only to man, but also to some animals. Is this attribution based upon the same unassailable intuition? If it is, why is it that we are so uncertain in making this attribution? Why do we unhesitatingly agree that the dog and the horse have consciousness, but find it difficult to agree as to its existence, or non-existence, in connection with the life of the ant and of the bee? Is it not evident that in the case of the animal world we are dealing with modes of interpretation based upon data that are at times equivocal?

The data we employ in the case of animals is very evidently found in their behavior. Is it not clear that we also attribute minds to other men as the result of a similar interpretation? And if this is true, why should we assume that we have a very special intuitive knowledge, transcendent of experience, which leads us to attribute consciousness to other human beings than ourselves? Let us examine this subject in some detail.

In everyday life we are concerned with the consideration of what we, when we become sophisticated, call objects-in-the-outer-world. Changes in these objects under changed conditions we speak of as their behavior. The word behavior is, however, generally specially applied to changes in living animals, and especially in men-animals; and as the behavior of men-animals is most significant in our lives, it is more often noted than that of other animals.

Now each human individual realizes that he himself is a man-animal; and each of us observes his own behavior more constantly, and more carefully, than that of any other man-animal. With certain forms of this behavior of our own which are hesitant, and

deliberate as we say, we note what we call consciousness. With certain other forms, which are non-hesitant, as for instance what we call our reflex acts, we note no consciousness. This leads us to look upon consciousness as something that is in a way detached from, although closely related with, our behavior.

But we go beyond that. The two types of our own behavior just mentioned are, as we have said, noticeably different in form; they are appreciated as hesitant and non-hesitant, and this quite apart from the fact that the one type has, and the other has not, its consciousness accompaniment. In observing the behavior of other men-animals, we note activities of these same two types; but when we make such observation we find no consciousness accompaniment with either of them. The kind of behavior that is always conscious behavior when noticed in myself, is witnessed in my neighbor without any consciousness accompaniment whatever. Thus I observe myself running away from a sudden danger and feel fear: where the danger applies to my neighbor, but not to me, I observe his flight, as I observe my own, but I feel no fear.

Notwithstanding this obvious fact, we have no hesitation in assuming that the behavior of other men that is like that behavior of our own that has a consciousness accompaniment, has for them also a consciousness accompaniment, even though we ourselves do not appreciate it. I do not hesitate to say that my neighbor was afraid when he fled in a panic, although I observed nothing but his flight, and no fear at all.

Evidently we are dealing here with a pure assumption. We assume that certain forms of behavior, which in our own cases involve a consciousness accompaniment, involve the same consciousness accompaniment for other men who behave in the same way. And within certain very arbitrary limits we are accustomed to make the same assumption in regard to the behavior of other animals than men.

On what grounds do we make this assumption? The average man is likely to say, that our neighbor tells us that he has this consciousness accompaniment of the behavior we refer to. But evidently we make the assumption whether he tells us of it or not. We assume his fear when he flees even if he does not tell us of it, and would believe him to be lying if he denied having been afraid. Moreover we are quite as ready to ascribe fear to the dog that runs away from attack as we are to the fleeing man, and the dog can not tell us of his fear: we assume it because of his behavior.

This leads us to note that speech is itself a form of behavior, the nature of which is indicated to us, not through sight indeed, but

through an equally reliable sense, *viz.* that of hearing. Whether I see a man shake his head in dissent from what I am saying, or hear him say "No, no," I do not myself appreciate the conscious state which I describe as dissent; but in the one case as in the other I interpret the head movement behavior noted through the eye, and the throat movement noted through the ear. In both cases I make the same assumption that behavior which, when it occurs in me, is accompanied by a specific conscious state, is accompanied by a similar conscious state when it occurs in him.

Further evidence that we are here dealing altogether with an interpretation, based upon an assumption, is given in the fact that we not infrequently attribute to other men states of consciousness which they tell us they did not experience. We then are likely to say that we misinterpreted their gesture behavior, or the purport of their speech, in this acknowledging the fact of interpretation.

As we have seen, the "common man" generally holds, tacitly, that we have a mysterious intuitive knowledge of other men's minds, a knowledge that is transcendent of experience. And more careful thinkers find it difficult to abandon this view. Some call our attention to the fact that the clear appreciation by the adult of his own Self is bound up with his recognition of other Selves; and would thus lead us to infer that our knowledge of other minds is of the same type as our knowledge of our own. But in this they cloud the issue. The notion of my "Self" is a highly complex conception developed from simpler conscious experiences that are themselves differentiated from behavior. It is true that the clear notion of my own Self is that of an individual in a group, and that the other members of the group are appreciated to be other Selves; but that merely throws us back to our original question, *viz.*, how do we come to believe that other individual men have consciousnesses, and the Selves that develop therein. In the very beginning of social relations each individual must have found implicit in his experience the distinction between the observed behavior of his own body *with* its added consciousness attribute, and the observed like behavior of other men *without* this added consciousness attribute; and it is evident that if a process of interpretation is explicit when we think clearly of the behavior and of the consciousness of other men, it probably, to say the least, has been implicit from the very beginning. The problem is thus merely thrown back in time.

We are thus led to ask what basis we have, if any, for the assumption we are considering. It seems to me that we have a very firm one in the very nature of consciousness as it is divulged to us

as the result of our psychological studies. These have taught us that when two characteristics of a frequently observed object are separable they become so connected by association, as we call it, that when one of the characteristics is given in a new object, the other of the two characteristics of the frequently observed object is likely to be reinstated as an image, and is thus naturally looked upon as an attribute of the object later observed. Furthermore the characteristics of the more frequently observed one of the two objects are the ones that are most likely to be attributed to the less frequently observed, but similar, of the two objects. Thus, for example, we see a carefully shaded round piece of yellow paper, and at once think "how exactly it looks like an orange." But, were round shaded pieces of yellow paper more common in our experience than oranges, we should say, when we saw an orange, "how much it looks like a shaded round piece of yellow paper."

In the very earliest observations of babyhood, the behavior of the baby's own body and of other person's bodies will naturally group themselves together. The baby's own hand movement, for instance, and the hand movements of the mother and nurse will appear to the baby to be all of a kind. Now the baby's own behavior, say its hand movements, is more constantly brought to its attention than the like behavior, again say the hand movements, of mother and nurse. Presently it finds that in connection with its own frequently observed hand movements it notes a conscious attribute. Hence when the baby next notes the hand movements of mother or nurse, the consciousness characteristic, so often observed in connection with its own most familiar hand movements, is reinstated as an image, and is attached by mere association to the less often, and less closely observed, hand movements of mother or nurse.

The process thus described in terms of hand movements would apply to all of the growing child's observation of behavior; and thus from the very beginnings of its life there would be established the habit of interpretation of the behavior of other persons in terms of consciousness. Indeed this habit would naturally tend to extend itself to all behavior of outer world objects, and thus we often find the young child attributing a conscious life to inanimate objects, a manner of thought that persists to a wide extent in adult life among childlike savages. But the experience of life must soon lead the child to the discrimination of animate from inanimate objects; and as this experience is extended he must find the interpretation referred to so effective in relation to the animate, and so ineffective in relation to the inanimate, that he will soon come to limit his interpretations in the main to apply to animate life. And this

manner of thought will be fostered as the child grows older by his appreciation of the fact that his conduct based upon this mode of interpretation is found to yield practical, and desired, results.

It would thus appear that the attribution of a consciousness characteristic to other men, connected with their behavior, is not due to any knowledge that transcends experience, but is due to a quite natural interpretation of the part of that experience which relates to the behavior of others, in terms of the much more frequently observed part of that experience which relates to ourselves.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

CONSCIOUS BEHAVIOR

MANY references in recent issues of this JOURNAL give the impression that when the behaviorist denies that consciousness must be regarded as an independent entity, this is equivalent to relinquishing the study of part of the subject-matter of traditional psychology. Some philosophers and psychologists seem to regard the behaviorists as animal psychologists who have availed themselves of the expedient of simply ignoring what they do not understand and then regarding this high-handed brushing aside of difficult problems as equivalent to a solution of these problems. This conception so manifestly underlies Mr. H. R. Marshall's¹ objection to behaviorism that an attempt may not be inappropriate to indicate how the most baffling problems of human conduct may be investigated without utilizing the subjective methods of traditional psychology. The behaviorist merely maintains that the biological methods used in natural science can also be applied to those phenomena which have been designated as conscious or mental.

The immediate epistemological problem is to demonstrate that the concept of consciousness may be eliminated from the descriptions and explanations of human conduct and yet include *all* behavior, from the simplest types of animal behavior to the most complex human adjustments. The issue is clearly stated in Mr. Marshall's article. After differentiating animal behavior into the two types of reflex or instinctive on the one hand, and highly complex behavior that is hesitant, on the other, he continues: "The biologist studies both of these types of behavior in all forms of animal life; in the higher animals and in man, and in both cases quite objectively. . . .

"But the biological student is himself a man, and as he observes his own activities, still as part of the objective world, he discovers

¹ "Behavior." This JOURNAL, Vol. XV., No. 10, pp. 258-261.